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ABSTRACT

Two studies are combined with an introductory section: one is "Persistence to Graduation for Freshmen Entering the University of North Carolina at Chapel Hill, 1967-75," by Timothy Sanford, and the second is "Freshman, Transfer, Professional, Masters, and Doctoral Student Retention at the University of North Carolina at Chapel Hill," by Paul D. Naylor and Timothy Sanford. Data tables, charts, and narratives present the results of these two studies. It is found that professional students show the highest retention rates; freshman graduation rates are rising noticeably with corresponding increases in the percentage getting their degrees earlier and later than the traditional four-year period; and differences between black and white students appear to be decreasing. Using freshman applicant data to compute predicted graduation equations for future freshmen shows some promise, particularly for black applicants; additional work is suggested in this area. (Author/MSE)

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RETENTION AND PERSISTENCE DATA

by

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Paper presented to the Inter-Institutional Research Group of the Institute on Desegregation at North Carolina Central University, Durham, NC, July 11, 1980.

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Retention and Persistence Data

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Associate Director of Institutional Research
The University of North Carolina at Chapel Hill

Presented to the Inter-Institutional Research Group of the
Institute on Desegregation, N.C. Central University,
Durham, N.C., July 11, 1980

The attached two papers on persistence and retention present data on students at The University of North Carolina at Chapel Hill. These papers stand alone in terms of the factual material presented, but a few comments are in order regarding the potential usefulness of such data to institutions of postsecondary education.

Retention and Persistence Data: Potential

1) Longitudinal data on retention and persistence provide information on the efficiency of an institution's educational process.

2) It provides information which may be useful in evaluating academic programs, student services, and administrative procedures.

3) It provides the base for analytical study of the admissions process.

4) It illuminates possible problem areas in which students may be dropping out at a high rate or taking an inordinate amount of time to graduate.

5) It suggests areas for improving retention and persistence which may help an institution offset expected declines in new students.

Retention and Persistence Data: Interesting Findings

1) Professional students (law, medicine, and dentistry) persist at rates much higher than other levels of students, and this holds across race and sex.

2) Graduation rates for entering freshmen are rising noticeably.

3) Differences in persistence and retention between blacks and whites appear to be decreasing; to some extent, the percentage of women appears to be increasing correspondingly.

4) More freshmen appear to be graduating both earlier and later than the traditional four-year period.

5) Of those undergraduates who do not persist, higher percentages of blacks are lost because of academic ineligibility.

6) Doctoral students have the lowest rates of persistence.

Retention and Persistence Data: Shortcomings

1) As gathered at UNC-CH, the data do not allow for tracking the "out and in" movement of students clearly. This would be a useful addition which we are considering.

2) Institutional quality does not appear to be measured directly by retention and persistence rates. Comparative data, then, must be used conservatively and with due recognition that higher rates do not mean better education.

3) Students who leave their original institution and enroll elsewhere should be dealt with consistently. We do not follow such students at

UNC-CH, but other institutions might wish to do so, particularly if large numbers of students transfer to other colleges or universities.

4) Predicted graduation equations calculated from application data of prospective freshmen may offer some help to admissions officers, but the small amount of variance explained by such equations calls for the cautious use of them.

The University of North Carolina at Chapel Hill

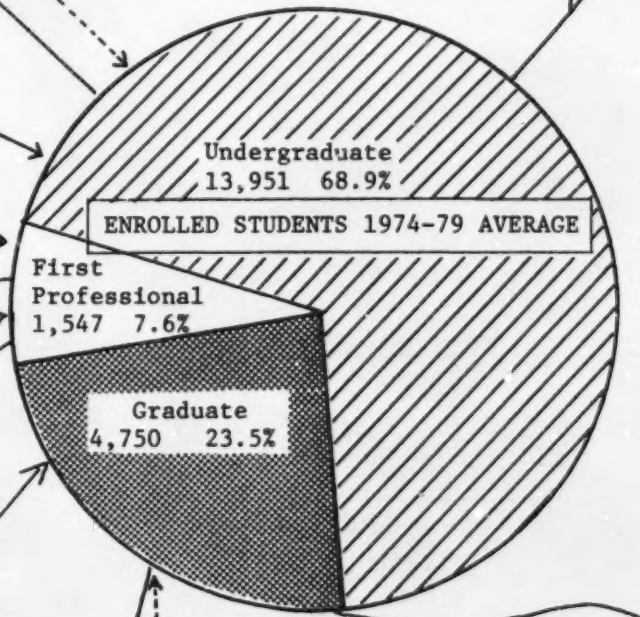
STUDENT BODY 1974-79

UNDERGRADUATE

	Avg. # Entered	Avg. % Dropouts/Stopouts After One Year	After Two Years	After Three Years	After Four Years	Avg. % Graduated After 4 Yrs.	Avg. # Graduates
Freshmen	2971	10.6	18.5	21.1	24.3	59.2	
Transfers	816	18.1	21.4	19.6	18.8	80.4	3,147

FIRST PROFESSIONAL

Avg. # Entered	470
Avg. % Dropouts/Stopouts	
After One Year	6.4
After Two Years	7.0
After Three Years	4.1
After Four Years	1.1
Avg. % Graduated After 4 Yrs.	86.9
Avg. # Graduates	413



GRADUATE

	Avg. # Entered	Avg. % Dropouts/Stopouts After One Year	Two Years	Three Years	Four Years	Avg. % Graduated After 4 Yrs.	Avg. # Graduates
Masters	1,208	19.7	28.2	25.6	24.7	70.4	1,159
Doctoral	284	17.4	30.4	40.8	52.1	19.3	306

Data Source: NCHED A-1.1, NCHED A-7, HEGIS 2300-2.1
Prepared by: Office of Institutional Research, July 1, 1980

Persistence to Graduation for Freshmen Entering The University of North Carolina at Chapel Hill, 1967-75

Timothy R. Sanford
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April 1980

Persistence to Graduation for Freshmen Entering The University of North Carolina at Chapel Hill, 1967-75

This report updates and expands upon the report, "Persistence to Graduation Patterns Among Freshmen Entering The University of North Carolina at Chapel Hill, 1967-72," which was issued by the Office of Institutional Research in March 1978. The body of the earlier report is not repeated here as this version aims at updating the statistical findings on the graduation rates of our entering freshmen. The findings are presented in the figures which follow and particular highlights of the data are noted below.

Special thanks in the compilation of the data are expressed to the Office of Records and Registration and Administrative Data Processing. Inquiries should be directed to the Office of Institutional Research.

Highlights

*As shown in Figure 1 the average graduation rate after four years for the 1967-75 freshmen classes is 51.1%. After five years (a more realistic comparative figure), the rate is 66.6%; after six years the rate is 68.1%; and for the 1968 and 1969 classes, the rate after ten years is 73.7%.

*Most students who graduate continue to do so after the traditional four year (45 months) interval as shown in Figure 3.

*Women maintain their higher rate of graduation over men as noted in the 1978 report. Figure 4 shows the average rates after five years for the 1967-74 classes to be 71.7% for women and 64.2% for men. The sex difference also holds across race as shown in Figure 6.

*While the disparity in graduation rates between blacks and whites is still evident (Figures 5 and 6), the difference seemed to be narrowing until the 1974 class in which the rate for blacks dropped while the rate for whites went up noticeably. Average rates after five years are 53.2% for blacks and 67.7% for whites.

*Figures 7 and 8 demonstrate that more able students (as indicated by SAT scores and predicted grade point averages (PGA) respectively) continue to have higher graduation rates.

Correlation and Regression Analyses

Beginning with the 1974 freshman class, the data files from which this report is compiled became available for computer analysis. While the 1978 report did list some correlations, the manual process was time consuming, subject to human error, and unable to use more than two variables at a time. With the addition of the capability for computer analysis, it became possible to create a predicted graduation equation (PGE) using entering freshmen characteristics to predict persistence to graduation. The results of this work are not impressive and do not appear to provide a new tool for the Office of Undergraduate Admissions to use to evaluate applicants for our freshman classes. All findings reported here were obtained using the Statistical Package for the Social Sciences (SPSS).

Figure 9 reports the correlation coefficients using sex, race, SAT verbal score (SATV), SAT mathematical score (SATM), SAT combined score (SATT), high school rank in class (HSR), and predicted grade point average (PGA) with graduation status. Only black and white students in the 1974 and 1975 entering freshman classes were included, and graduation status was operationalized as a simple dichotomy. Despite the fact that statistical significance was achieved most of the time, the correlations are not particularly noteworthy or indicative of important

relationships. The largest correlations were obtained between graduation status and high school rank in class for blacks and with predicted grade point average for whites. Remembering that predicted grade averages are calculated from high school rank and SAT scores, the most important finding from Figure 9 is the strongest correlation of high school rank with graduation status for blacks over all other possible correlations.

In an attempt to put all these variables together to form a predicted graduation equation and to clarify the relationships, multiple regression analyses were run using the same set of variables. Because the results were not particularly informative as was mentioned previously, a limited review of these analyses is presented here. Anyone desiring more complete data should contact Tim Sanford in the Office of Institutional Research.

Figure 10 shows the results which account for the highest proportion of explained variance in regressing entering freshman characteristics on graduation status for the blacks and whites in the 1974 entering freshman class. The findings for black freshmen are more impressive (10% of variance explained) than for white freshmen (2%) or for blacks and whites combined (5%), but none of the findings appear to approach a level of explanation (prediction) which would justify the use of the resulting predicted graduation equations (PGE) in admissions' procedures. Further research will be conducted, however, because the potential for greater success is evident.

The PGE's shown in Figure 10 for each of the three analyses produce results on a scale comparable to that of the predicted grade point average equation (PGA) except that the low end of the scale is 1.0 instead of 0.0. Hypothetical data for two imaginary students having the lowest and highest possible combinations of values for all the variables produce PGE's of 1.017 and 3.492 respectively when using the PGE for blacks and whites combined. The equations are most sensitive to fluctuations in high school rank in class (HSR); for example, changing

HSR to the second tenth instead of the top tenth results in a PGE of 3.286 as compared to the 3.492 shown above while changing HSR to the second tenth instead of the bottom tenth gives PGE = 2.122 instead of the 1.017 from above.

While the usefulness of these data remains to be established, the results portend some utility in helping The University recognize applicants who may be likely to experience success in Chapel Hill. Particularly in the area of minority admissions where applicants may not have strong credentials on traditional measures do these analyses seem particularly promising.

Figure 1

Graduation Rates for Freshmen Classes
Entering UNC-CH, 1967-75

Classes Entering	After Four Years # Graduated	%		After Five Years # Graduated	%
1967	1281	50.1		1644	64.3
1968	1071	50.6		1348	63.7
1969	1248	52.1		1502	62.7
1970	1351	46.6		1778	61.7
1971	1512	48.9		2016	65.2
1972	1479	51.9		2024	71.0
1973	1657	51.7		2227	69.4
1974	1585	54.9		2118	73.4
1975	1580	53.4			
1967-75	12,764	51.1	1967-74	14,657	66.6

Classes Entering	After Six Years # Graduated	%	After Ten Years # Graduated	%
1967[1]	1688	66.0	Not available	
1968	1383	65.4	1566	74.0
1969	1549	64.7	1758	73.4
1970	1856	64.0	-	
1971	2131	68.9	-	
1972	2098	73.6	-	
1973	2325	72.5	-	
1967-73	13,030	68.1		

[1]As of December, 1972 graduation (5 2/3 years)

Figure 2

NUMBER AND PERCENTAGE OF FRESHMEN ENTERING UNC-CH, 1967-1975, GRADUATING AT VARIOUS GRADUATION DATES

Entering Freshmen Classes

	1967		1968		1969		1970		1971		1972		1973		1974		1975	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
June, 1969	1	-																
June, 1970	23	0.9	2	0.1														
Aug., 1970	19	0.7	0															
Dec., 1970	71	2.8	0															
May, 1971	1,167	45.7	19	0.9														
Aug., 1971	143	5.6	25	1.2	1	-												
Dec., 1971	93	3.6	74	3.5	3	0.1												
May, 1972	127	5.0	951	45.0	35	1.5	18	0.6										
Aug., 1972	35	1.4	112	5.3	37	1.5	2	0.1										
Dec., 1972	9	0.4	78	3.7	84	3.5	0											
May, 1973			87	4.1	1,088	45.4	26	0.9	25	0.8								
Aug., 1973			19	0.9	127	5.3	25	0.9	1	-								
Dec., 1973			9	0.4	31	1.3	70	2.4	2	0.1								
May, 1974			7	0.3	96	4.0	1,210	41.7	42	1.4	19	0.7						
Aug., 1974			18	0.9	16	0.7	172	5.9	42	1.4	0							
Dec., 1974			16	0.8	18	0.8	109	3.8	105	3.4	0							
May, 1975					13	0.5	146	5.0	1,295	41.9	42	1.5	11	0.3				
Aug., 1975					8	0.3	40	1.4	159	5.1	32	1.1	3	0.1				
Dec., 1975							18	0.6	136	4.4	99	3.5	1	-				
May, 1976							20	0.7	209	6.8	1,287	45.1	39	1.2	10	0.3		
Aug., 1976									55	1.8	147	5.2	30	0.9	0			
Dec., 1976									35	1.1	184	6.5	84	2.6	3	0.1		
May, 1977									25	0.8	214	7.5	1,489	46.4	32	1.1	7	0.2
Aug., 1977											36	1.3	171	5.3	15	0.5	0	
Dec., 1977											19	0.7	189	5.9	85	2.9	2	0.1
May, 1978											19	0.7	210	6.5	1,440	49.9	22	0.7
Aug., 1978													52	1.6	167	5.8	18	0.6
Dec., 1978													23	0.7	158	5.5	101	3.4
May, 1979													23	0.7	208	7.2	1,430	48.4
Aug., 1979													13	0.4	33	1.1	149	5.0
Total	1,688	66.04	1,417	67.00	1,557	65.04	1,856	64.00	2,131	68.90	2,098	73.6	2,338	72.9	2,151	74.5	1,729	58.5
Total in Class	2,556		2,115		2,394		2,900		3,093		2,852		3,208		2,887		2,957	

Totals	# Freshmen Entered	# Freshmen Graduated	% Graduated
1967-75	24,962	16,965	68.0

Data Source: Office of Record & Registration

Prepared by: Office of Institutional Research, 2/15/80.

Figure 3

Number of Months to Graduate for Freshmen Entering UNC-CH, 1967-75

	1967		1968		1969		1970		1971		1972		1973		1974		1975		TOTAL		Cumulative Total	
# Months	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
21	1	0.04	2	0.09	0	0.0	18[1]	0.6	25[1]	0.8	19[1]	0.7	11[2]	0.3	10[1]	0.3	7[4]	0.2	93	0.4	93	0.4
24	0	0.0	0	0.0	1	0.04	2	0.07	1	0.03	0	0.0	3	0.1	0	0.0	0	0.0	7	0.03	100	0.4
28	0	0.0	0	0.0	3	0.1	0	0.0	2	0.06	0	0.0	1	0.03	3	0.1	2	0.1	11	0.04	111	0.4
33	23	0.9	19	0.9	35	1.5	26	0.9	42[2]	1.4	42[3]	1.5	39	1.2	32	1.1	22	0.7	280	1.1	391	1.6
36	19	0.7	25	1.2	37	1.5	25	0.9	42	1.4	32	1.1	30	0.9	15	0.5	18	0.6	243	1.0	634	2.5
40	17	2.8	74	3.5	84	3.5	70	2.4	105	3.4	99	3.5	84	2.6	85	2.9	101	3.4	773	3.1	1,407	5.6
45	1,167	45.7	951	45.0	1,088	45.4	1,210	41.7	1,295	41.9	1,287	45.1	1,489	46.4	1,440	49.9	1,430	48.4	11,357	45.5	12,764	51.1
48	143	5.6	112	5.3	127	5.3	172	5.9	159	5.1	147	5.2	171	5.3	167	5.8	149	5.0	1,347	5.4	14,111	56.5
52	93	3.6	78	3.7	31	1.3	109	3.8	136	4.4	184	6.5	189	5.9	158	5.5	-	-	978	3.9	15,089	60.4
57	127	5.0	87	4.1	96	4.0	146	5.0	209	6.8	214	7.5	210	6.5	208	7.2	-	-	1,297	5.2	16,386	65.6
60	35	1.4	19	0.9	16	0.7	40	1.4	55	1.8	36	1.3	52	1.6	33	1.1	-	-	286	1.1	16,672	66.8
64	9	0.4	9	0.4	18	0.8	18	0.6	35	1.1	19	0.7	23	0.7	-	-	-	-	131	0.5	16,803	67.3
69	-	-	7	0.3	13	0.5	20	0.7	25	0.8	19	0.7	23	0.7	-	-	-	-	107	0.4	16,910	67.7
72	-	-	18	0.9	8	0.3	-	-	-	-	-	-	13	0.4	-	-	-	-	39	0.2	16,949	67.9
76	-	-	16	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	0.06	16,965	68.0
Total Graduate	1,688	66.0	1,417	65.0	1,557	65.0	1,856	64.0	2,131	68.9	2,098	73.6	2,338	72.9	2,151	74.5	1,729	58.5	16,965	68.0	16,965	68.0
# in class	2,556		2,115		2,394		2,900		3,093		2,852		3,208		2,887		2,957		24,962		24,962	

[1] All students admitted as Dental Hygiene Certificate Candidates.

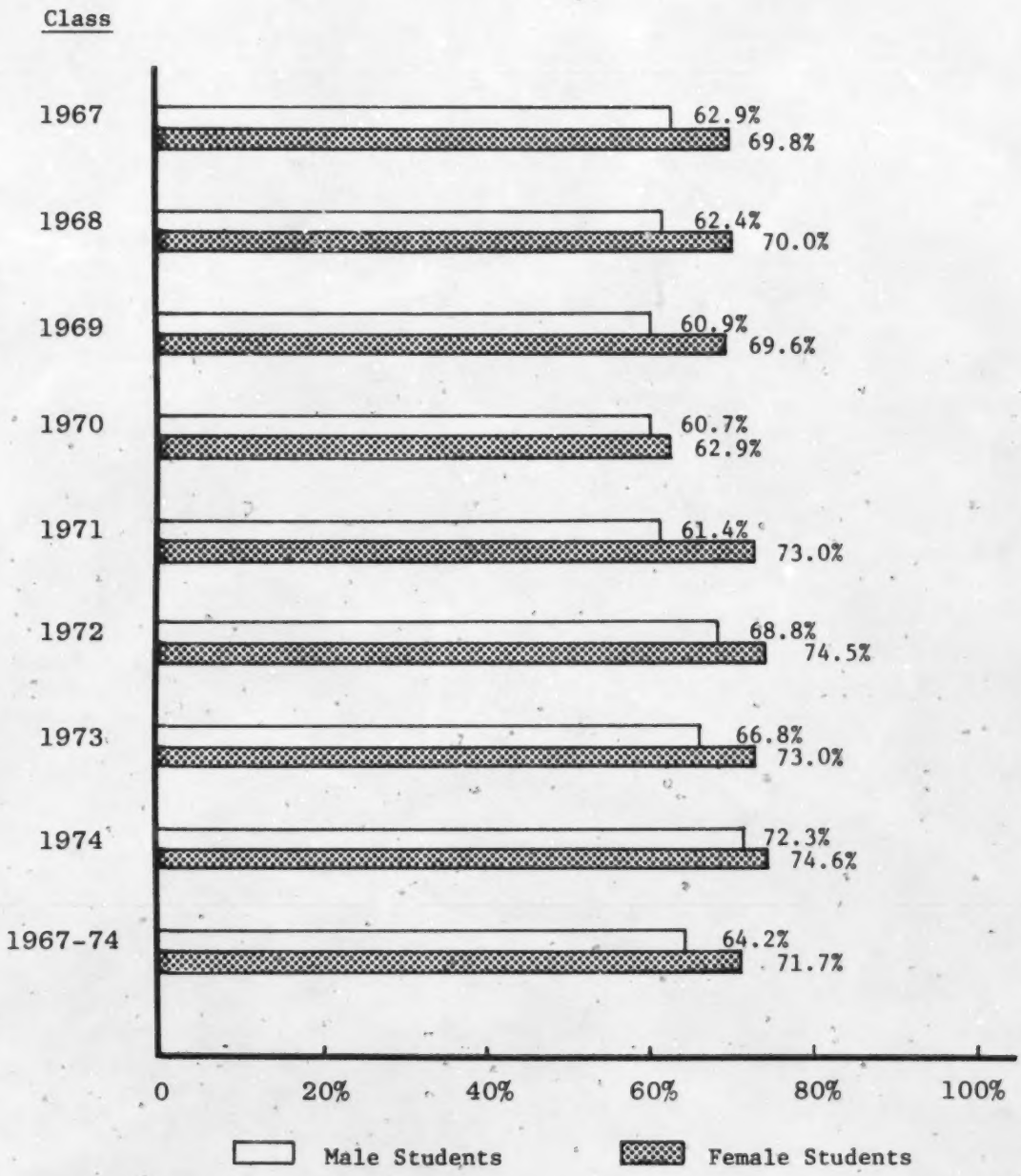
[2] Four of these students were Dental Hygiene Certificate Graduates.

[3] One of these students was a Dental Hygiene Certificate Graduate.

[4] Six of these students were Dental Hygiene Certificate Graduates.

Figure 4

GRADUATION RATES OF STUDENTS ENTERING UNC-CH AS FRESHMEN, BY SEX, 1967-74, AFTER FIVE YEARS

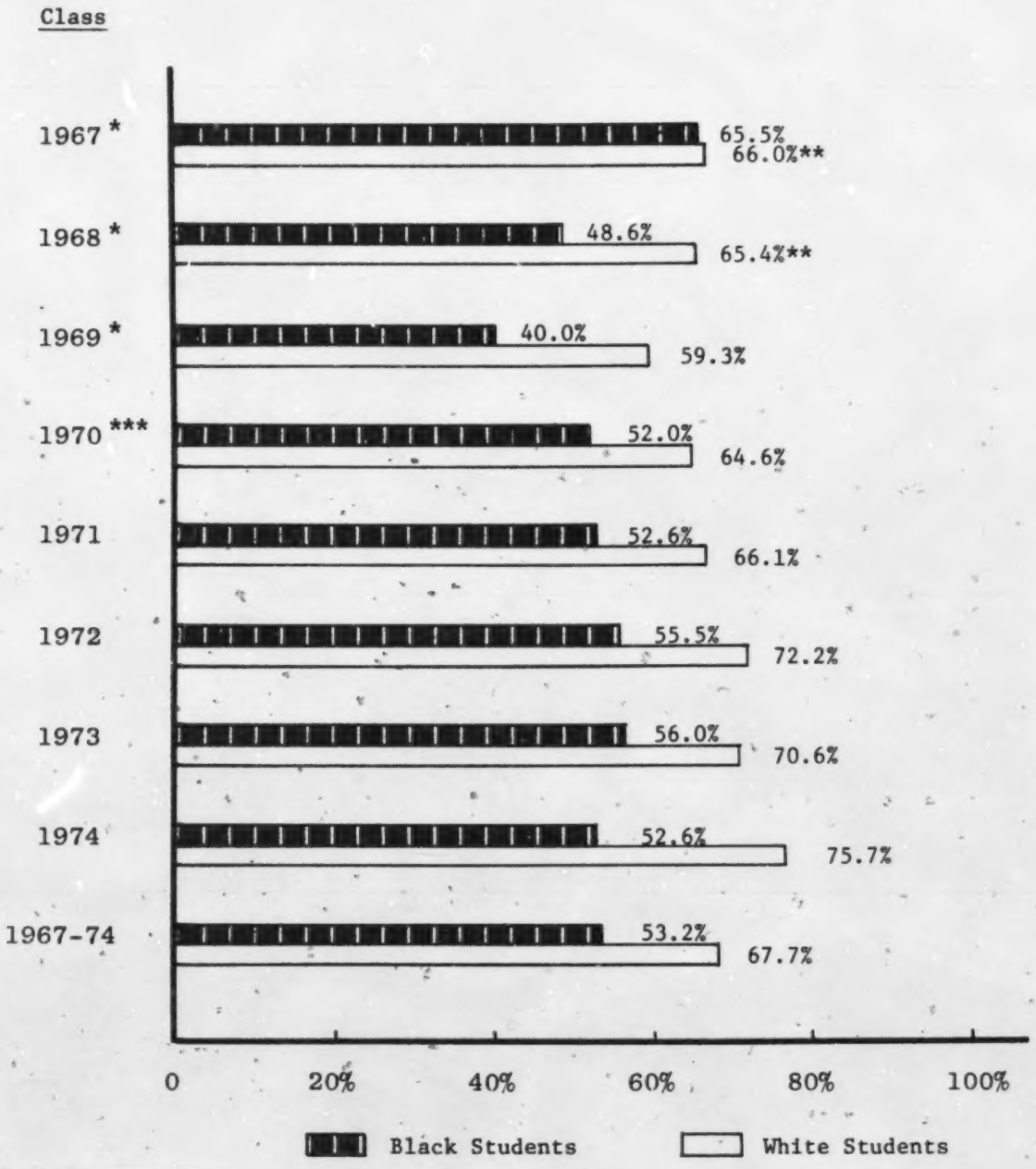


Note: For the freshman classes, 1967-74, the total graduation rate after five years is 66.6%.

DATA SOURCE: Office of Records & Registration
PREPARED BY: Office of Institutional Research, 2/18/80

Figure 5

GRADUATION RATES OF STUDENTS ENTERING UNC-CH AS FRESHMEN, BY RACE, 1967-74, AFTER FIVE YEARS



* Not five years after entering; figures as of December 1973 graduation.

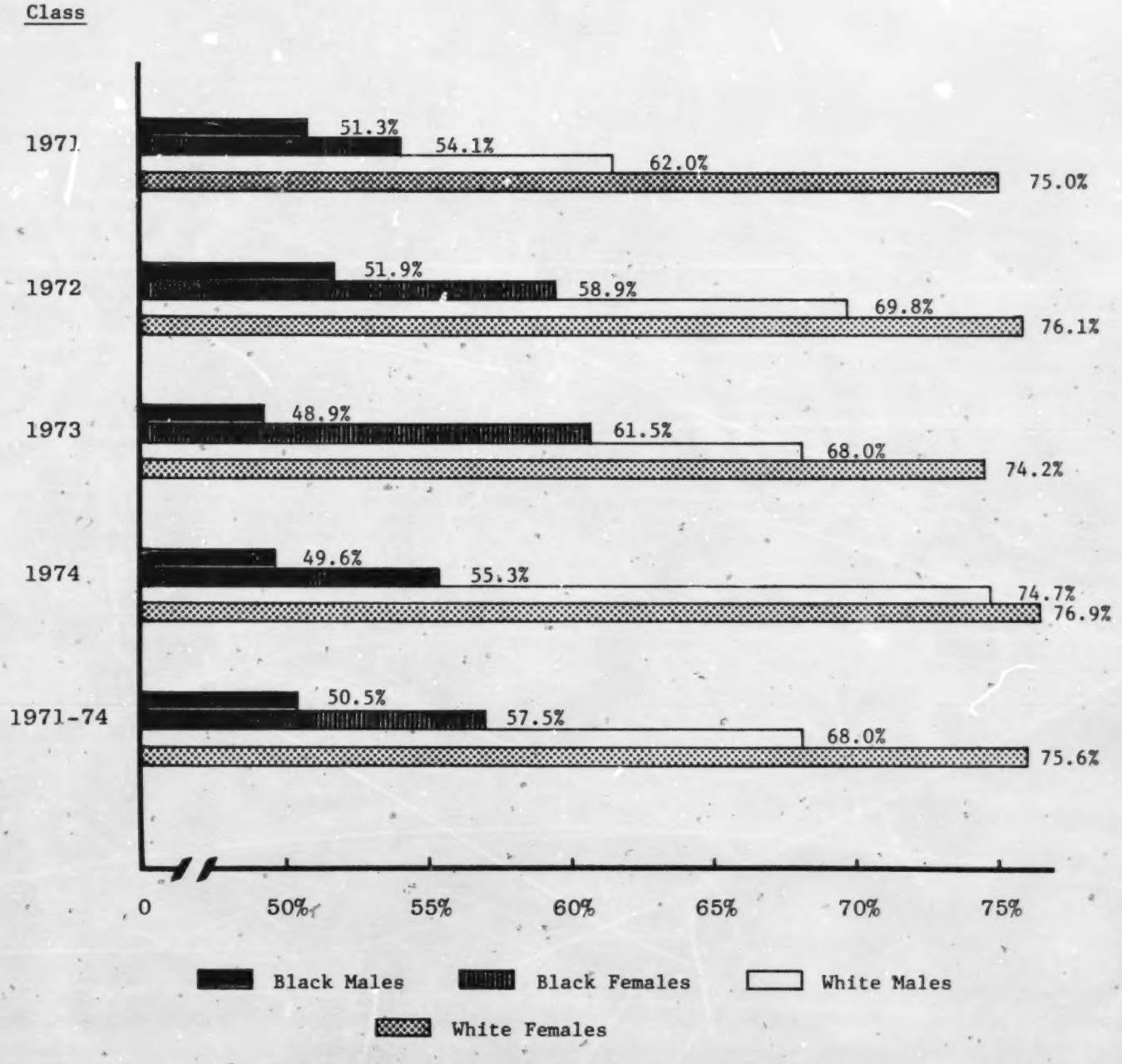
** Figures for white students in 1967 and 1968 include minorities other than black.

*** Not five years; as of May 1976 graduation.

DATA SOURCE: Office of Records & Registration
PREPARED BY: Office of Institutional Research, 2/18/80

Figure 6

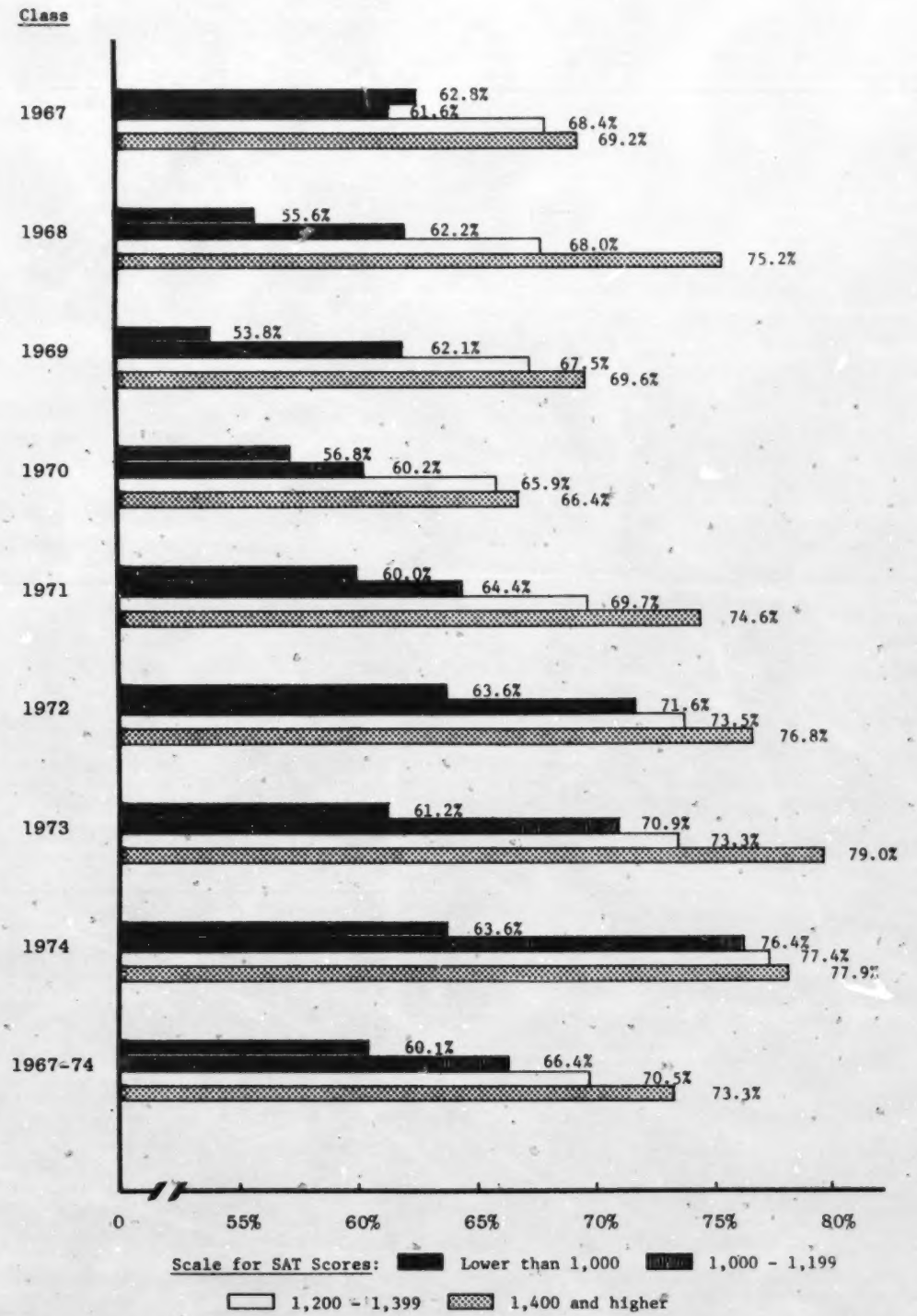
GRADUATION RATES AFTER FIVE YEARS FOR FRESHMEN ENTERING UNC-CH, 1971-74, BY RACE AND SEX



DATA SOURCE: Office of Records & Registration
PREPARED BY: Office of Institutional Research, 2/19/80

Figure 7

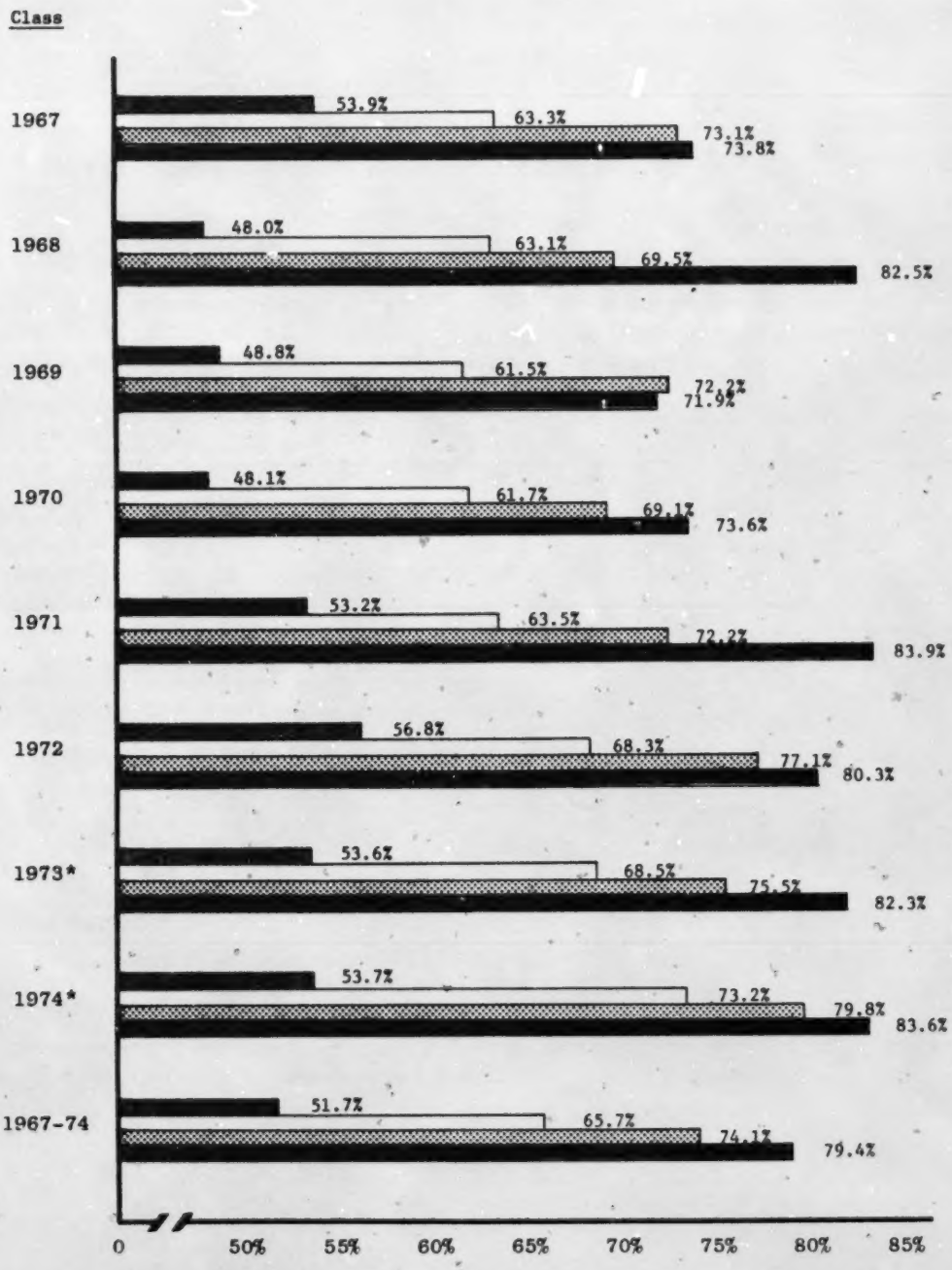
GRADUATION RATES AFTER FIVE YEARS FOR FRESHMEN ENTERING UNC-CH, 1967-74, BY SAT SCORES



DATA SOURCE: Office of Records & Registration
PREPARED BY: Office of Institutional Research, 2/19/80

Figure 8

GRADUATION RATES AFTER FIVE YEARS FOR FRESHMEN ENTERING UNC-CH, 1967-74, BY PREDICTED GRADE POINT AVERAGES



Scale for Predicted Grade Point Averages: 0.0 - 2.000; 2.001 - 2.600; 2.601 - 3.200; 3.201 - 4.000

* For the 1973 and 1974 cohorts, the four PGA categories are: 0.0 - 1.999, 2.0 - 2.599, 2.6 - 3.199, 3.2 - 4.0.

DATA SOURCE: Office of Records & Registration
PREPARED BY: Office of Institutional Research, 2/20/80

Figure 9

Pearson Correlation Coefficients Using Graduation Status[1] as the Dependent Variable

	Sex	Race	SATV[2]	SATM[2]	SATT[2]	HSR[2]	PGA
1974 Class							
Blacks	0.04	-	0.15**	0.12***	0.15**	-0.30*	0.23*
Whites	0.01	-	0.08*	0.08*	0.09*	-0.13*	0.13*
Total	0.01	0.14*	0.13*	0.13*	0.15*	-0.18*	0.18*
1975 Class							
Blacks	0.11***	-	0.11***	0.04*	0.09*	-0.26*	0.21*
Whites	0.10*	-	0.06*	0.06*	0.07*	-0.08*	0.09*
Total	0.09*	0.10*	0.10*	0.09*	0.11*	-0.11*	0.13*
1974 & 1975							
Blacks	0.07***	-	0.14*	0.09***	0.13*	-0.28*	0.22*
Whites	0.05*	-	0.08*	0.07*	0.09*	-0.10*	0.12*
Total	0.05*	0.12*	0.12*	0.12*	0.13*	-0.14*	0.16*

* $p < .001$

** $p < .01$

*** $p < .05$

[1] Graduation status operationalized as 1 = NO, 2 = YES.

[2] SATV = SAT verbal score

SATM = SAT mathematical score

SATT = SAT combined score

HSR = High school rank in class; categories for this variable are reversed so that a low value means a high rank; hence, the negative signs should be ignored.

Figure 10

Multiple Regression Analyses on Graduation Status and Predicted Graduation Equations (PGE) for Black and White Freshmen Entering UNC-CH in 1974

1974 Black Freshmen

	Multiple R	R^2	r	Beta
High School Rank*	0.29828	0.08897	-0.29828	-0.26647
SATV	0.31054	0.09644	0.14835	0.05687
Sex (Female)	0.31169	0.09715	0.04727	-0.02464
PGA	0.31253	0.09768	0.25717	0.03510
SATM	0.31272	0.09779	0.13164	0.01532

Predicted Graduation Equation**

$$PGE = [1.4667 - 0.8818(HSR) + 0.0003(SATV) - 0.0245(Sex) + 0.0499(PGA) + 0.0001(SATM)]^2$$

1974 White Freshmen

	Multiple R	R^2	r	Beta
High School Rank*	0.13306	0.01770	-0.13306	-0.11158
PGA	0.14730	0.02170	0.12711	0.02764
SATM	0.14870	0.02211	0.08292	0.03258
Sex (Female)	0.14914	0.02224	0.00824	-0.01250
SATV	0.14951	0.02235	0.07771	0.01794

Predicted Graduation Equation**

$$PGE = [1.6005 - 0.445(HSR) + 0.0282(PGA) + 0.0002(SATM) - 0.0106(Sex) + 0.0001(SATV)]^2$$

1974 Freshmen (Blacks and Whites)

	Multilple R	R^2	r	Beta
High School Rank*	0.18433	0.03398	-0.18433	-0.14728
Race (White)	0.20930	0.04381	0.14024	0.07185
SATM	0.21812	0.04758	0.13742	0.04378
SATV	0.21976	0.04830	0.13024	0.03350
Sex (Female)	0.22017	0.04848	0.00850	-0.01449
PGA	0.22018	0.04848	0.18121	0.00551

Predicted Graduation Equation**

$$PGE = [1.3938 - 0.5605(HSR) + 0.1074(Race) + 0.0002(SATM) + 0.0002(SATV) - 0.0127(Sex) + 0.0054(PGA)]^2$$

*As noted in Figure 9, High School Rank is coded in **reverse** and the negative signs are unimportant.

**Predicted Graduation Equation (PGE) obtained by squaring the predictive equation for the graduation status variable; the range of PGE is 1.0 to 4.0 approximately; standard errors of the predictive values of the graduation status variable are 0.4777 (blacks), 0.4210 (whites), and 0.4267 (both).

Freshman, Transfer, Professional, Masters, and Doctoral Student Retention at the University of North Carolina at Chapel Hill

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Freshman, Transfer, Professional, Masters, and Doctoral Student Retention at the University of North Carolina at Chapel Hill

Certainly few issues in higher education have gotten more attention lately than the impending reduction of the traditional college-going age pool, and the retention of students already enrolled is seen as one way to help offset some of the impact of reduced enrollment (Jackley & Henderson, 1979). The American Council on Education has pointed out that in the steady search for students administrators often overlook the obvious: hanging on to those students already enrolled. Retention is a viable tactic for reducing the impact of the anticipated decline in the size of the college pool, and retention data can be a valuable aid in an institution's planning efforts (Lehman and Sanford, 1978).

While at the moment the University of North Carolina at Chapel Hill (UNC-CH) is in a comfortable position with regard to applicants, it is reasonable for the University to look to the future to see how it can retain those students who have passed a difficult selection process. Particular sense is made in terms of keeping those previously selected, since they have the qualities the University is looking for and they have been recruited and enrolled once already. In addition it is less costly to retain students than it is to continue the process of finding new ones to fill in the empty spaces.

Before one can design a usable retention strategy with high potential for success, one must have a thorough picture of attrition at one's institution and longitudinal analysis is a prerequisite. UNC-CH is fortunate to have five years of data on cohorts of freshmen, upper-level transfers, graduate, and professional students as result of data collected voluntarily and to meet reporting requirements of the Office for Civil Rights. An analysis of these data can point to

areas of concern and opportunities for change and improvement. Assuming that there are many different approaches to retention, such analysis can help an institution understand the dimensions of its attrition problem and design appropriate corrective measures.

Findings From Other Studies

The best national estimate of retention in American institutions of post-secondary education may come from figures released by the Policy Analysis Service of the American Council on Education (Jackley and Henderson, 1979). These figures show the progression of freshman classes as broad estimates that 30% of entering freshmen leave their original college during the first year; an additional 20% leave during the second year; and, an additional 10% leave during the third year resulting in a cumulative attrition rate of 60% over four years. As an obvious corollary, the retention or persistence to graduation rate for freshmen who enter and finish at the same institution is 40%.

Other national data are provided from the National Longitudinal Study of the High School Class of 1972 (Eckland and Wisenbaker, 1979). These figures show an overall retention rate after four years of 65% with 39% of the freshmen having earned degrees. Unlike the ACE data, however, these figures include students who transfer to other colleges so it is no surprise that the reported rates of retention are higher. Eckland and Wisenbaker (1979:7) also provide breakdowns in retention by race and sex. For whites the rate is 66% as compared to rates of 55.2% for Blacks and 44.4% for Hispanics (other ethnic groups not listed separately). Within these three ethnic groups only, the sex differences show rates of 64.4% for men versus 63.6% for women.

When one looks at data from individual colleges and universities, greater variation in retention rates is evident than was seen in the national data. St. Mary's College (Lester, 1977) studied student withdrawals and reported retention rates of

91.1% for freshmen after one year, 78.7% after two years, and 71.2% after three years. The University of Delaware (Pemberton, 1979) found retention rates after five years of 69% for freshmen who entered in 1973 and 66% for the 1965 entering freshmen. Sex differences were slight among the 1965 freshmen--67% men, 65% women--and non-existant in the 1973 group. Racial data were available only for the 1973 freshmen and revealed rates of 70.8% for whites, 34.1% for blacks, and 51.3% for other minorities.

Data gathered by North Carolina State University (Gracie, 1978) for freshman classes entering since 1972 show retention rates of 79.6% after one year, 70.1% after two years, 66.1% after three years, and 63.5% after four years. Corresponding rates for blacks were 79.6%, 72.9%, 69.0%, and 58.9%, and for whites were 79.7%, 70.0%, 66.0%, and 63.6%. Sex differences revealed rates of 79.8%, 67.7%, 62.2%, and 58.5% for women as compared to 79.7%, 71.0%, 67.5%, and 65.1% for men.

In the last study to be reviewed here, Newlon and Gaither (1980) reported attrition rates for new freshmen and junior transfers at California State University, Northridge over the period 1971-77. Since their figures do not include students who graduate, only those rates prior to the normal graduation period (three years for freshmen, one year for junior transfers) are mentioned here. For freshmen the rates were reported as 68.0% after one year, 51.5% after two years, and 43.5% after three years. Comparable rates by sex were 66.8%, 49.9%, and 41.7% for women and 69.4%, 53.0%, and 45.3% for men. Considering junior transfers the rate after one year was 66.0% with very slight differences by sex--66.0% for men and 65.7% for women.

Together these studies suggest that institutions of postsecondary education are seriously interested in retention and that rates vary noticeably across institutions. The literature has not been a source of much comparative data for retention of entering students at levels other than freshmen, but such information

is equally of potential use to colleges and universities. Before examining the data from the study being reported here, brief mention needs to be made concerning the possible misuse of comparative retention rates as indicators of institutional quality. While high rates are rightfully a source of pride, they are not necessarily representative of quality education and should not be construed as such.

Data Source

The Student Retention Data Survey establishes enrollment data each year for entering students in 5 categories: New Freshmen, New Upper Level Transfers, New First Professionals, New Masters, and New Doctoral - by race and sex. Each new year forms the basis for a distinct cohort which is followed every year for five years and then at the ten year interval to ascertain retention characteristics of the cohort. Currently 5 cohorts have been identified with 5 years of data available for the 1974 cohort, 4 years for the 1975 cohort, down to one year for the 1978 cohort. Those students leaving the university for a period of time and then returning (stopping-out) are reunited with their original cohorts. As Newlon and Gaither (1980) pointed out, this tends to more accurately reflect persistence rates. The source of the data is the North Carolina Higher Education Data (NCHED) Report A-7 which is required by the UNC General Administration and the Office for Civil Rights, U.S. Department of Education.

In the following discussion and tables, the rates of persistence are reported in terms which combine students still enrolled or graduated. The data are presented by Category (Freshmen, Masters, etc.) showing the retention rate of each cohort from 1 to 5 years depending on the entry date of the cohort. The categories are presented separately by race and sex except for those student categories with an insignificant number of minority students. Figure 1 and the five tables are included at the end of the paper.

Findings

Over time the "First Professionals" (medicine, dentistry, and law) persist at a rate noticeably higher than any other category. After one year the average rate for First Professionals is 93.6% compared to 89.4% for Freshmen and 82.6% for Doctoral Students (Figure 1). The average persistence rates for professional students continue to be well over 90% for all 5 years, and this high rate holds when the data are viewed from the standpoints of sex and race (Table 3).

With the exception of year 1, Doctoral Students have the lowest rate of persistence. After two years the difference between Doctoral Students and Master's Students is 2.2%, but by year 4 this difference has grown to 27.4%. Doctoral Students are, by this point, dramatically lower in persistence than any of the other groups measured.

Freshmen Retention

Over the five year period covered by these data, there appears to be little difference between the persistence rates of freshman men and women (Table 1). With some variation men have persisted at a slightly higher rate after two years and beyond. Specifically, the rates are 82.5% for men versus 80.7% for women, but the magnitude of the difference becomes smaller after 3 years (0.7%) and 4 years (0.5%) with women achieving a 0.2% higher persistence rate after 5 years for the only cohort available (1974). The largest reduction in enrollment for all Freshmen occurs by the end of one year (10.6%) followed by the drop after two years (7.6%).

While a review of the average figures for each year group shows a large difference in persistence rates between Blacks and Whites (83.9% vs. 90.1% after 1 year ranging to 57.7% vs. 77.8% after 4 years), a more interesting comparison may be within cohorts. After 1 year the 1974 cohort evidenced an 11.5% difference

in persistence, but the 1978 cohort showed only a 3.9% difference. The 1976 and 1977 cohorts have also shown a marked reduction in the difference between White and Black Freshmen.

Upper-Level Transfers

For Upper-Level transfers (Table 2), women have persisted at a rate higher than men for all cohorts across all year categories with rates as much as 8.7% higher for the after three years group. This contrasts with the very small difference in persistence rates by sex found in the data on Freshmen. Due to the very small number of Non-White Upper-Level transfers, no comparison by race has been done.

First Professionals

Two things most evident about the persistence rates for First Professional students (Table 3) are that, with only a few exceptions (1974 men and women after two years and 1974 and 1975 women after one year), the rates are all over 90% and that they tend to increase each year. In the 1974 cohort, women fell to 81.5% after two years but recovered to 94.6% after three years, and at the end of four years, 100% of the original group was still enrolled or graduated. The figures for men follow a similar pattern.

Viewing the rates by race makes little real difference in the pattern. Professional school students persist at markedly higher rates than do other students and race has little immediate effect on the high rates. What is most interesting is that Blacks, while still lagging behind Whites in this category, persist at a rate far higher than other students in the University regardless of race with an average greater than 90% for each of the years from 1974 to 1978. Apparently the factors affecting retention in professional schools have similar effects across racial lines. Note that the number in the "Others" racial group is so small as to be of little comparative value.

Masters

At the masters level (Table 4), women persist at a higher rate than men. After one year the difference is small (79.7% for men versus 80.9% for women), but after two years the difference grows to 6.1% and remains near that level for subsequent years. Rates for all cohorts across gender drop after two years but recover for subsequent years suggesting that students stop out and then return to receive their degrees.

The data for Masters level students show a pattern similar to other categories with White retention substantially higher than Blacks. The difference is quite pronounced by year 3 (16.8%) and year 4 (18.5%). Perhaps not quite so apparent, however, is the improvement in Black retention in the later cohorts (1976, 1977, 1978) with the Blacks in the 1977 cohort persisting after year 2 at a rate 1% higher than Whites (74.3% vs 73.3%), and both the 1977 and 1978 cohorts show Blacks persisting at a higher rate than Whites after year 1.

The proportion of black students entering each of the cohorts has remained relatively stable ranging from 6.3% in 1975 to 7.5% in 1978. One may be interested to note, however, that in the 1976 to 1978 Black cohorts, the proportion of women was 67.5%, 75.7%, and 60.4% respectively compared to 53.9% in 1974 and 57.1% in 1975. Since it is in the 1976 to 1978 year cohorts that over-all Black persistence improved, the question may be how much impact the increase in the proportion of women in the entering cohort had on retention within the cohort.

Doctoral Students

The noticeable difference in male and female persistence rates evident at the masters level is not found at the doctoral level (Table 5) although men persist at a slightly higher rate than women. Despite some rather large differences in certain cohorts (1978 year 1, 88.3% men and 78.0% women, 1974 year 4, 37.3% men and 48.5% women), the variance between sexes has not been very great. Since Doctoral

students have eight years in which to complete their studies at UNC-CH and are able to stop out for varying periods without penalty, it will be necessary to obtain eight years of data before a definitive statement can be made on these persistence rates.

The pattern of nigher persistence by Whites continues with doctoral students until after the 3 year point at which time Blacks persist at a higher rate overall and in all cohorts except 1976. The 1977 cohort has shown unusually low persistence for Blacks in all years reported, ranging as low as 46.2% after three years. The White portion of that cohort has had one of the higher persistence rates over the same period, 60.1% after three years and 86.2% after one year.

An examination of the number of Blacks admitted to Doctoral studies in 1976 does not appear to be disproportionate to the other years covered by the study--a total of 13 Blacks (5.8% of the cohort) as compared to a range of 11 (4.1%) in 1974 to 23 (6.6%) in 1978.

Musings

In viewing the data and pondering the meaning thereof, several interesting points come to light and perhaps bear some further scrutiny.

Students in the professional schools persist at a higher rate than do students at any other level reported. Factors accounting for this higher retention rate might be:

(a) More rigorous entry standards for professional schools.

(b) Greater educational experience and clearer goals on the part of the professional school student.

(c) A higher degree of commitment on the part of professional schools to retain students once admitted.

(d) A more highly formalized support system for the floundering student; an example would be the learning skills lab at the medical school.

In recent years the difference in persistence rates between white and black freshmen within cohorts has diminished. This change could be due to:

(a) An overall increase in the black presence on campus thereby making UNC-CH, perceptually at least, a less alien environment to blacks.

(b) The increased black student population creating improved opportunities for peer support, lower feelings of isolation, and increased awareness on the part of faculty and staff of the unique needs of black undergraduates.

Doctoral Students have the lowest rate of persistence of all categories and this may be influenced by:

(a) Greater age and greater need for income on the part of doctoral students.

(b) Greater exposure to the field and subsequent opportunity for employment.

(c) Lack of an absolute requirement for the degree in order to practice in their fields, unlike their peers in the professional schools.

(d) Inaccuracy of the definition of persistence for doctoral students.

Since UNC does not require continous registration prior to the awarding of a graduate degree, it is possible that some of the apparent terminations have actually completed course work and are engaged in dissertation preparation without being registered formally. How many of these students have actually terminated their studies as opposed to "stopping out" will become clearer after 8 years (the statutory time limit for UNC doctoral study) of data have been accumulated.

What then are the possible policy implications for UNC or other large universities? The high retention rate of professional students suggests that it might be valuable for those academic programs concerned about attrition rates to study the methods used by professional schools to see if some are adoptable. While the apparent increase in black student retention is certainly encouraging, one wonders if the improvement is due solely to an increase in numbers or if there have been concomitant changes in University attitudes and policies contributing to the favorable situation. In that event the University might benefit from an examination of those policies and attitudes and the degree to which they have fostered black student retention.

References

Eckland, B.K. and Wisenbaker, J.M. National Longitudinal Study: A capsule Description of Young Adults Four and One-Half Years After High School. Research Triangle Park, N.C.: Research Triangle Institute, February 1979.

Gracie, L.W. Student Retention and Graduation at North Carolina State University. Raleigh, N.C.: Office of Student Affairs Research and Planning, N.C. State University, November 1978.

Jackley, J.P. and Henderson, C. Retention: Tactic for the Eighties. ACE Policy Brief. Washington, D.C.: American Council on Education, December 1979.

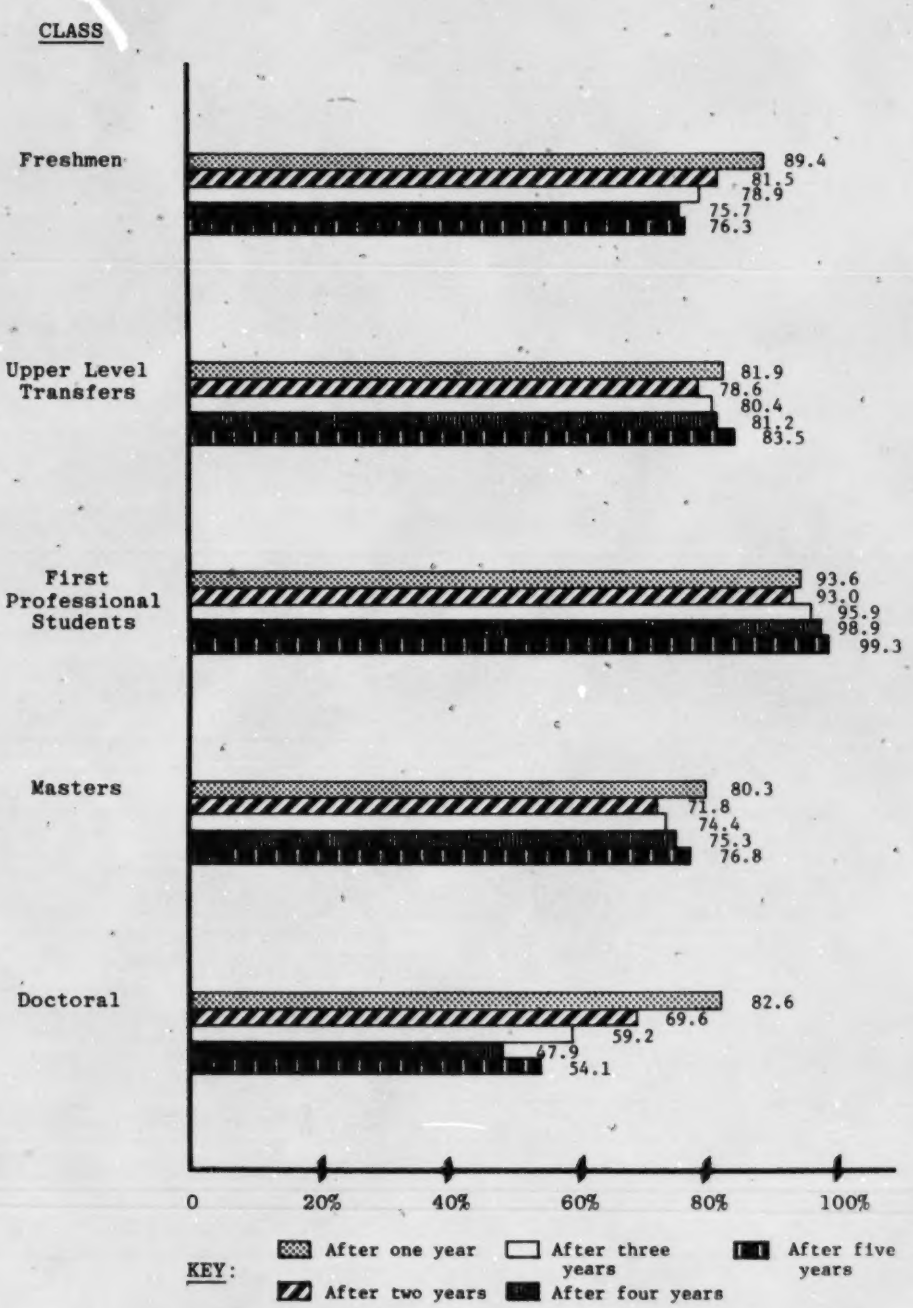
Lehman, L.Y. and Sanford, T.R. "Graduation Rate Data: A Major Contribution to Institutional Planning." Paper presented at the Annual Meeting of the Southern Association for Institutional Research, Nashville, TN., October 26-27, 1978.

Lester, J. Withdrawal Study. Notre Dame, Ind.: Saint Mary's College, January 1977.

Newlon, L.L. and Gaither, G.H. "Factors Contributing to Attrition: An Analysis of Program Impact on Persistence Patterns." College and University, 55(2), 1980, 237-251.

Pemberton, C. "A Longitudinal Study of the Original Class of 1977 at the University of Delaware." Newark, DE: University of Delaware, January 1979.

Percentages of Entering UNC-CH Students Still Enrolled or Graduated After One Year (1974-78 Classes), After Two Years (1974-77), After Three Years (1974-76), After Four Years (1974-75), After Five Years (1974).



Source: NCHED A-7
Prepared by: Office of Institutional Research
6/6/80

Percentage by Race and Sex of Entering UNC-CH Freshmen, 1974-78, Still Enrolled or Graduated

After One Year

		Race			Sex		Total
	(Base #)	Black	White	Other	Men	Women	
1974	(2887)	79.9	91.4	87.0	90.2	90.3	90.3
1975	(2957)	78.5	89.8	85.4	88.5	89.0	88.7
1976	(2895)	88.6	90.1	84.6	90.6	89.4	89.9
1977	(3048)	88.3	89.3	86.3	89.0	89.3	89.1
1978	(3070)	86.0	89.9	77.9	89.2	89.2	89.3
Average 74-78	(14857)	83.9	90.1	83.1	89.5	89.4	89.4

After Two Years

1974	(2887)	69.8	83.1	69.6	82.3	80.8	81.6
1975	(2957)	72.1	82.6	77.1	81.7	81.4	81.6
1976	(2895)	80.3	82.2	76.9	84.0	80.3	82.0
1977	(3048)	75.7	81.8	70.6	82.0	80.5	81.2
Average 74-77	(11787)	73.9	82.4	73.4	82.5	80.7	81.5

After Three Years

1974	(2887)	65.7	80.0	69.6	78.7	78.2	78.5
1975	(2957)	67.2	80.2	72.9	78.8	79.1	78.9
1976	(2895)	75.1	79.7	76.9	80.4	78.4	79.3
Average 74-76	(8739)	68.7	80.0	72.9	79.3	78.6	78.9

After Four Years

1974	(2887)	59.7	78.3	63.0	76.8	75.8	76.3
1975	(2957)	54.3	77.3	68.8	74.9	75.3	75.1
Average 74-75	(5844)	57.8	77.8	66.0	75.9	75.5	75.7

After Five Years

1974	(2887)	59.3	78.2	67.4	76.2	76.4	76.3

Table 2

Percentage by Sex of Entering Upper Level Transfers, 1974-78, Still Enrolled or Graduated

	(Base #)	Men	Women	Total
After One Year				
1974	(826)	81.0	86.7	84.3
1975	(861)	79.3	85.0	82.5
1976	(762)	81.7	85.4	83.9
1977	(818)	77.7	80.3	79.2
1978	(814)	74.8	82.5	79.2
Total	(4081)	78.9	84.0	81.9
After Two Years				
1974	(826)	76.2	84.6	81.0
1975	(861)	75.4	82.3	79.2
1976	(762)	77.4	80.6	79.3
1977	(818)	73.9	75.9	75.1
Total	(3267)	75.7	80.8	78.6
After Three Years				
1974	(826)	78.5	86.9	83.3
1975	(861)	73.8	82.5	78.6
1976	(762)	76.8	81.3	79.4
Total	(2449)	76.3	83.6	80.4
After Four Years				
1974	(826)	79.3	87.1	83.8
1975	(861)	73.6	82.9	78.7
Total	(1687)	76.3	85.0	81.2
After Five Years				
1974	(826)	79.3	86.7	83.5

Table 3

Percentage by Race and Sex of Entering First Professional Students, 1974-78, Still Enrolled or Graduated

After One Year

		Race			Sex		Total
	(Base #)	Black	White	Other	Men	Women	
1974	(424)	83.8	91.1	100.0	91.0	89.1	90.6
1975	(455)	90.7	90.3	81.8	90.8	87.6	90.1
1976	(477)	90.5	96.5	100.0	96.5	94.6	96.0
1977	(502)	100.0	96.3	80.0	96.3	96.6	96.4
1978	(492)	90.3	95.1	88.9	94.7	92.5	94.1
Average 74-78	(2350)	91.3	94.0	90.5	93.9	92.7	93.6

After Two Years

1974	(424)	83.8	86.9	100.0	88.3	81.5	86.8
1975	(455)	92.6	94.6	100.0	95.0	92.8	94.5
1976	(477)	90.5	95.8*	90.0	96.8	90.8	95.2
1977	(502)	92.9	95.0	100.0	94.4	96.0	94.8
Average 74-77	(1858)	90.3	93.7	96.8	93.7	91.0	93.0

After Three Years

1974	(424)	83.8	94.8	100.0	93.7	94.6	93.9
1975	(455)	98.1	98.2	100.0	98.6	96.9	98.7
1976	(477)	92.9	95.5	100.0	95.1	94.6	95.4
Average 74-76	(1356)	92.5	96.2	100.0	96.0	95.3	95.9

After Four Years

1974	(424)	94.6	99.7	100.0	99.1	100.0	99.3
1975	(455)	98.1	98.7	90.9	98.6	97.9	98.5
Average 74-75	(879)	96.7	99.2	94.1	98.8	98.9	98.9

After Five Years

1974	(424)	94.6	99.7	100.0	99.1	100.0	99.3

*2 students previously classified as Other

Percentage by Race and Sex of Entering Master's Degree Students, 1974-78, Still Enrolled or Graduated

	(Base #)	Race: Black	Race: White	Race: Other	Sex: Men	Sex: Women	Total
After One Year							
1974	(1308)	80.9	80.2	69.9	78.0	80.7	79.4
1975	(1223)	70.1	78.6	78.6	78.7	77.5	78.1
1976	(1145)	76.3	82.6	83.9	79.8	84.1	82.2
1977	(1160)	85.1	81.9	71.2	80.7	82.1	81.5
1978	(1206)	83.5	81.0	74.0	81.7	80.0	80.7
Average 74-78	(6042)	79.3	80.8	74.7	79.7	80.9	80.3
After Two Years							
1974	(1308)	51.7	72.0	62.8	66.7	72.8	69.8
1975	(1223)	53.2	75.3	71.4	72.1	75.2	73.7
1976	(1145)	58.8	72.6	74.2	68.2	74.5	71.7
1977	(1160)	74.3	73.3	63.6	67.3	76.5	72.3
Average 74-77	(4836)	59.1	73.3	67.7	68.6	74.7	71.8
After Three Years							
1974	(1308)	56.2	76.0	69.0	70.6	77.4	74.1
1975	(1223)	54.5	75.0	72.9	71.7	75.4	73.6
1976	(1145)	66.3	76.1	80.6	73.1	77.7	75.6
Average 74-76	(3676)	58.9	75.7	73.1	71.7	76.8	74.4
After Four Years							
1974	(1308)	60.7	77.3	67.3	71.7	78.7	75.3
1975	(1223)	55.8	76.6	75.7	73.4	77.0	75.2
Average 74-75	(2531)	58.4	76.9	70.5	77.5	77.9	75.3
After Five Years							
1974	(1308)	59.6	79.0	69.0	73.8	79.8	76.8

Percentage by Race and Sex of Entering Doctoral Students, 1974-78, Still Enrolled or Graduated

	(Base #)	Race			Sex		Total
		Black	White	Other	Men	Women	
After One Year							
1974	(266)	81.8	81.5	79.5	84.6	88.7	86.1
1975	(258)	83.3	78.8	73.9	77.2	81.3	78.7
1976	(225)	61.5	86.2	66.7	82.4	83.1	82.7
1977	(326)	85.7	81.4	80.0	80.8	83.0	81.6
1978	(347)	82.6	83.8	85.7	88.3	78.0	83.9
Average 74-78	(1422)	80.2	83.4	77.7	82.8	82.4	82.6
After Two Years							
1974	(266)	63.6	70.4	64.1	69.2	69.1	69.2
1975	(258)	88.9	69.6	69.6	68.3	75.8	70.9
1976	(225)	53.8	73.4	54.2	70.9	68.8	70.2
1977	(326)	61.9	69.3	64.0	70.6	64.3	68.4
Average 74-77	(1075)	68.3	70.5	63.1	69.8	69.2	69.6
After Three Years							
1974	(266)	72.7	60.2	66.7	60.4	63.9	61.7
1975	(258)	77.8	54.8	52.2	53.9	60.4	56.2
1976	(225)	46.2	60.1	58.3	64.1	51.9	59.6
Average 74-76	(749)	66.7	58.3	60.5	59.3	59.2	59.2
After Four Years							
1974	(266)	54.5	41.7	35.9	37.3	48.5	41.4
1975	(258)	66.7	53.5	56.5	55.1	53.8	54.7
Average 74-75	(524)	62.1	47.6	43.5	46.1	51.1	47.9
After Five Years							
1974	(266)	72.8	52.5	56.4	54.4	53.6	54.1